EACHA
European
Automated Clearing House
Association

EACHA Interoperability Framework 5.0

Processing of SEPA Payments

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Content

1 About the EACHA

1.1 The EACHA

The European Automated Clearing House Association started in early 1990 as an informal meeting of executives from European ACHs. On 28 September 2006, representatives from 20 Automated Clearing Houses and retail Payment Processors founded EACHA officially under Belgian law, since then it has grown to comprise 22 members. Name of the members and a link to their website can be found on www.eacha.org

EACHA is a not-for-profit organisation and does not perform a commercial or operational role in Payment processing.

EACHA is the technical cooperation forum of European ACHs, its philosophy is that healthy competition also means cooperative teamwork. EACHA believes firmly in developing a common vision for the future, and favouring harmonious implementation of European policies and schemes including Interoperability based on open standards.

EACHA aims to:

- be a forum enabling its members to share information;
- advance the views of its members on issues of general interest;
- addressing specific issues as and when they arise e.g. developing common guidelines for clearing and Settlement of SEPA Payments.

1.2 Purpose and Scope of Document

EACHA's aim with this Framework is to complement the SEPA standards by establishing an Interoperability Framework that adheres to EPC's schemes and market goals. The Interoperability Framework must at least realise Interoperability between CSMs, but should also be available to be used by Payment Service Providers.

It is EACHA's aim to enable technical Interoperability. It is not EACHA's aim to implement bilateral Interoperability agreements between CSMs. This is the domain of the CSMs themselves. It is up to the individual CSMs to decide if and with which party they would like to operate a link based on the EACHA Framework.

1.3 Terminology

The Framework uses the PSD terminology; parties are addressed in their role as Payment Service Providers or CSMs. It concentrates on the Payment functions rather than who is performing the specific function(s) or process (es), as many banks combine (parts of) both roles. Whenever in this document the term "bank" is used it refers to its role as Payments Service Provider. The term Clearing and Settlement Mechanism (CSM) is used in the capacity of a Payment Processor that allows participating Payment Service Providers or their branches

to clear and Settle Payments made between them. This is in line with the definition of CSM described in the PEACH/CSM Framework of the EPC.

1.4 EACHA Interoperability Framework

The EACHA Interoperability Framework 5.0 is aligned with the EPC SCT Rulebook 4.0, the EPC Rulebook 4.0 SDD Core and the EPC Rulebook 2.0 SDD B2B. A split is made between the functional and technical description of EACHA Interoperability to make it more accessible. The Framework itself gives a global functional and technical overview for those who want to understand the main principles of EACHA Interoperability.

A number of annexes provide the technical and functional details necessary for the implementation:

- Annex I describes the Reach Tables
- Annex II describes the SCT Messages to be exchanged between CSMs
- Annex IIIA describes the SDD Core Messages to be exchanged between CSMs
- Annex IIIB describes the SDD B2B Messages to be exchanged between CSMs
- Annex IV describes the transmission standard of the files exchanged between CSMs
- Annex V describes the reconciliation process

2 Building Technical Interoperability

2.1 Interoperability supporting SEPA goals

The SEPA was launched in January 2008 through the SCT Scheme; the gradual take up of the new scheme has been accompanied by continuous work on a number of essential architectural elements to complement the design and achieve full SEPA:

1 the PSD to harmonise the legal and regulatory environment;

2 shared European governance and oversight by the National Banks;

3 TARGET2 as the common Settlement platform effectively overcoming national boundaries for Settlement purposes;

4 the SCT/SDD Rulebooks issued by the EPC in conjunction with the Implementation Guidelines providing common Payment products;

5 standardised (ISO20022) UNIFI Messages introducing XML as main stream technology in Payments leveraging IP related developments;

The introduction of these well defined architectural elements together is crucial to build our common SEPA for efficient Payments between citizens, corporations and institutions where interior boundaries will have disappeared effectively. The new SEPA, once fully deployed, can be characterised as a scale free network were all can reach all because the architectural elements of SEPA are principally available equally to all.

2.2 Building the Interoperability Framework on EPC work

The standards defined in the European Payment Council (EPC) Scheme Rulebooks and Implementation Guidelines, in the UNIFI Message sets and the PEACH/CSM Framework laid the foundation for Interoperability. To reach the broad spectrum of goals for the SEPA, EACHA believes that additional operational and technical conventions for technical Interoperability are needed.

EACHA explicitly recognises the EPC's role in defining the SEPA Payment schemes and the business Interoperability that they ensure between scheme Participants. EACHA seeks to standardise the technical procedures necessary for the technical Interoperability of CSMs.

EACHA believes that Interoperability is a key component of the SEPA infrastructure in a competitive market and through the Interoperability Framework aims to promote the following shared goals:

- Creating reach in SEPA
- A harmonised implementation of SEPA and end-to-end Payment processing on an infrastructure level
- Competitive choices for Payment Services Providers and CSMs
- Market-led rationalisation to boost efficiency and quality

2.3 The EACHA CSM Interoperability model

Interoperability is achieved in a layered approach, building on international messaging standards delivered by ISO and industry Payment schemes and implementation guidelines delivered by the EPC. EACHA delivers a Framework defining the technical layer being the messaging standards and exchange rules in the Inter-CSM space for ensuring efficient and safe delivery of transactions between CSMs. An overarching Business layer is added through bilateral Inter-CSM Interoperability Agreements covering the contractual responsibilities and liabilities undertaken by the CSMs themselves in providing Interoperability to its Direct Participants.

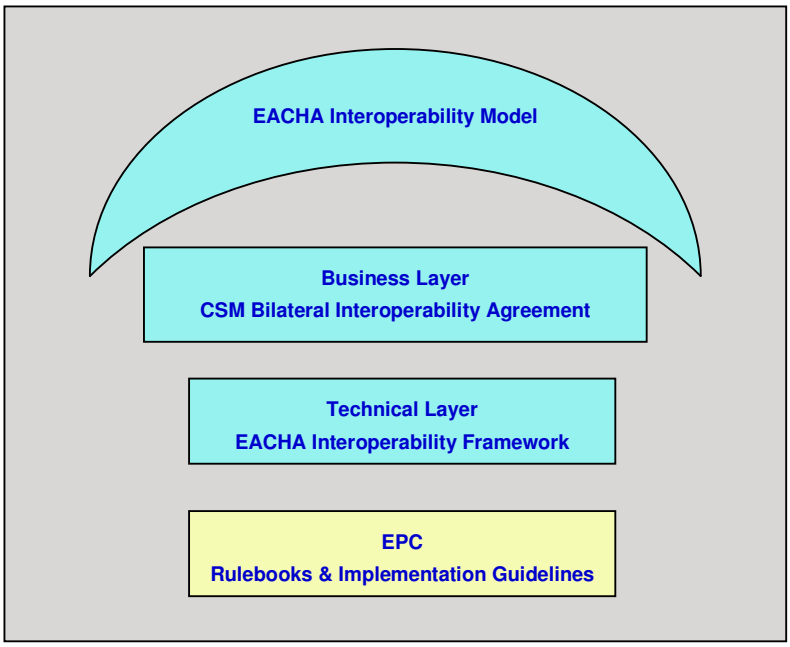

Figure 1: The Interoperability layers on top of the basis for SEPA: EPC Rulebooks and Implementation Guidelines

In this Framework Interoperability refers to the ability to be systematically and consistently accessible to other Payments Service Providers and CSMs. It enables parties to use the same technical standards and procedures and make it possible for them to exchange data fully automatically. This enables Payment Service Providers to process Payments straight through via multiple CSMs.

2.4 Importance of Technical Interoperability

- Technical Interoperability is needed to reach SEPA objectives on STP processing

  Based on common Interoperability standards, a seamless Payment processing environment will be created at an operational level so that Straight-Through Processing (STP) is maximised to realise the SEPA scheme goals.

- Technical Interoperability is needed to create full reach in SEPA

  With common standards CSMs are able to connect to each other (Inter-CSM connections) and share their reach. This creates the infrastructure needed in SEPA.

- Technical Interoperability is vital to create a level playing field within the SEPA

  Full Interoperability will lead to the freedom for Payment Service Providers to change Community, or to join several communities, all based on the same Interoperability basics. CSMs will compete based on the volumes they attract and on the services they provide. Combined with low switching cost as a result of shared Interoperability, the market will constantly arbitrage inefficiencies and barriers.

2.5 Business Interoperability

The business layer is a key component to Interoperability being the contractual relationship between two CSMs in providing bilateral reach. The business layer will typically define the:

- Messaging and processing flows in accordance with the Interoperability Framework
- Operational procedures and exception handling
- Synchronisation of routing table exchanges
- Synchronisation of processing cycles
- Settlement phases and cycles

A CSM Interoperability Agreement will include the obligations of each CSM to ensure the timely and secure clearing and Settlement between the Payment Service Providers they provide services to.

2.6 Achieving and maintaining Interoperability standards

The Interoperability standards are developed and maintained by the EACHA Taskforce that consists of Payments experts of the EACHA Members. Maintenance and developments are based on the developments and changes of the EPC Rulebooks and the experience of Members operating bilateral connections. This assures that the Framework remains to be aligned with daily practice supporting the goals of Payment Service Providers and CSMs alike within SEPA.

EACHA builds on the standards set by EPC. However when functionality is required specifically meant to support Interoperability, EACHA defined specific standards based on open XML standards. The Reach Table is a good example of this.

The EACHA Framework is future proof because it offers the flexibility to extend the Interoperability between CSMs to future new to be developed schemes by the EPC.

3 The EACHA model

The EACHA Model consists of a number of technical elements, which together will enable any of the possible ways of exchanging a Payment between two Payment Service Providers. This allows a sending Payment Service Provider to choose the appropriate mechanism to reach the receiving Payment Service Provider from any of the mechanisms it has available.

The Interoperability rules and options are consistent with SEPA schemes and existing CSM legal and operational arrangements. No additional financial or legal risks need to be assumed by CSMs and no significant investments in IT development or connectivity are envisaged.

3.1 Equality between Parties

EACHA believes that Interoperability can only be established based on mutually agreed conditions without specific pre-conditions from one of the parties involved. Only in this way a level playing field can be established enabling the required competition within the SEPA. It means that parties cooperate on creating the interoperable connection and compete on services.

3.2 Interoperability Process

EACHA model has the following sequence of events:

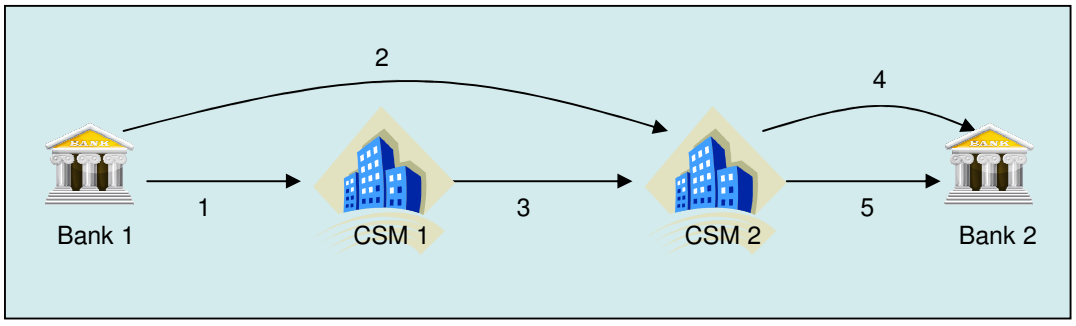

Figure 2: EACHA Interoperability for SCT

1. Bank1 sends Payments file to CSM1 for processing
2. At Settlement time CSM1 will debit Bank1 and Credit CSM2 though TARGET2 with the value of transactions for Bank2
3. CSM1 will send the Payment instructions to CSM2
4. CSM2 will reconcile the Credit amount received in TARGET2 with the Payment files received from CSM1. Upon successful reconciliation, at Settlement time CSM2 will Credit Bank2 through Target2 with the funds received from CSM1
5. CSM2 will send the Payments file to Bank2

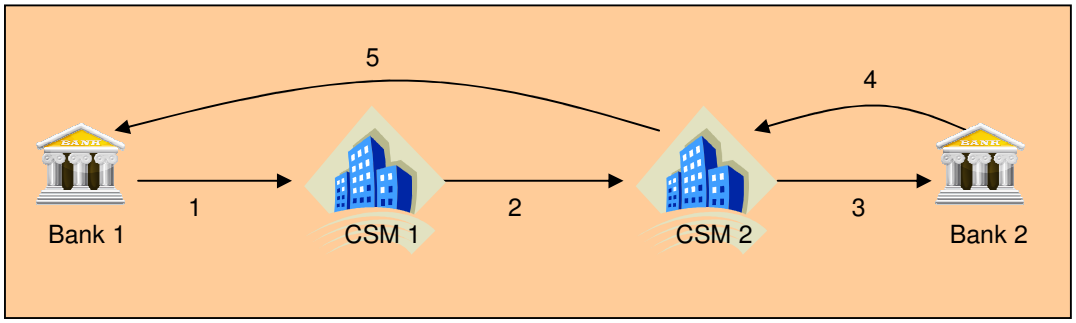

Figure 3: EACHA Interoperability for SDD

1. Bank1 sends collection file to CSM1 for processing
2. CSM1 sends collection file to CSM2 for processing
3. CSM2 sends collection file to Bank2
4. At Settlement time CSM2 will Debit Bank2 and Credit CSM1 though TARGET2 with the value of transactions for Bank1
5. CSM1 will reconcile the Credit amount received in TARGET2 with the original collection file send to CSM2. Upon successful reconciliation, CSM1 will Credit Bank1 through TARGET2 with the funds received from CSM2

3.3 Minimised Risk

Settlement, credit and liquidity risks for the CSM and the Payment Service Providers either on the sending or the receiving sides are carefully managed. To eliminate Settlement risk, a 'Settlement before output' model is used. Messages are only forwarded when the Settlement cycle has been successfully completed. Settlement is always done in TARGET2 and EACHA recognises that there are two approaches to the use of Payment Module (PM) accounts used for Inter-CSM settlements in terms of the ownership of these accounts (also read 3.6):

- Fiduciary Account model: in this model the PM account used to hold funds for the exchange of Payments between CSMs is owned by a Central Bank

- Liquidity Bridge model: in this model the PM account used to hold funds for the exchange of Payments between CSMs is owned by a Payment Service Provider within the Community of the Receiving CSM

Credit and liquidity risk is managed between CSMs by the Settlement Finality of TARGET2. Within the CSM its own Settlement Finality rules are applicable.

3.4 Reach and Routing

Creating the infrastructure where all can reach all in SEPA requires clarity about how Payment Service Providers can be reached. The EACHA Framework provides the means to communicate and exchange reach to have a clear view on the Reachability of Payment Service Providers. Reach information must therefore be shared, but how Payments are routed is out of scope of this Framework.

There are two different overviews regarding reach and routing information:

1. **Reachability Directory**; contains information on how SEPA compliant Payment Service Providers can be reached. This allows initiating Payment Service Providers to decide on how to reach other Payment Service Providers. This data must be available to all market Participants.

2. **Reach Table**; contains Payments Service Providers (and the reachability related business/technical attributes such as cut-off times) that a CSM can reach. This provides Payment Service Providers connected to the CSM, information on who and under what conditions it can reach other Payment Service Providers. This data is only available for Participants of the CSM and other CSMs with whom this particular CSM has an interoperable connection.

The advantage of segregating the two purposes over two tables is that it is clear who is responsible for the information in the different tables. Payment Services Providers are responsible to communicate to the market how they can be reached via the Reachability Directory. It is the responsibility of the CSM to communicate its reach to its Participants and connected CSMs via the Reach Table and therefore the Reach Table is part of the EACHA Interoperability Framework. More information on the Reach Table can be found in Annex I.

3.5 Validation

It is up to the individual Payment Service Provider and CSM which validations are done and in what way. However the constraint is that it must not lead to frustrations in the Payment chain to ensure Straight Through Processing. Specifically R-transaction validations on for example timelines within the Payment chain can lead to frustration.

As a guideline it is advised not to perform checks that could frustrate the Payment chain on Payments received from other CSMs. It is the responsibility of the Payment Service Provider to adhere to the rules and timelines set in the Rulebooks. Of course CSMs can offer services to validate this on behalf of the Payment Service Provider. In this case the CSM, having a contract with the Payment Service Provider, validates the Payments received from the Payment Service Provider, not the other CSM.

3.6 Inter-CSM Settlement

EACHA uses TARGET2 as the Settlement mechanism for inter CSM Settlement. The Single Shared Platform (SSP) of TARGET2 offers six Settlement procedures for the Settlement of ancillary systems through the Ancillary System Interface (ASI). CSMs can choose which of these procedures to use for Inter-CSM Settlements (Note: procedures 4, 5 and 6 are the most used procedures). These procedures allow CSMs to send Messages to TARGET2 that will enable them to debit and credit Settlement accounts of banks and Inter-CSM Settlement accounts.

Inter-CSM Accounts

The generic model for Inter-CSM Settlement involves the Sending CSM crediting an account in Settlement cycle 1 and the Receiving CSM debiting the same account in Settlement cycle 2. The model relies on the use of PM accounts within TARGET2 as the mechanism to do this because it is not possible to settle funds directly to the Participant of the other Community. The account is always "owned" (see further discussion of actual account ownership below) by the Receiving CSM. Some CSMs use a single account for all of their Interoperability arrangements. Other CSMs use a different account for each Interoperability arrangement.

The preferred model is that the account is a "Fiduciary Account" which means the funds are legally shielded from insolvency. The account is used to hold intra day funds solely for the purposes of settling transactions that have been transmitted by other CSMs. Two options are used in terms of ownership of the account i.e.

- **Account in the name of the CSM**

  CSMs are eligible to be direct TARGET2 Participants and hold Settlement accounts in the Payment Module of the Single Shared Platform on the basis that they are "organisations providing clearing and or Settlement services subject to oversight by a competent authority". In practise, such accounts are held at the NCB that sponsors the CSM into TARGET2. The account will usually be established as some form of trust account, such that funds held on account legally belong to the client banks of the Receiving CSM thus protecting the funds from the insolvency of the CSM.

- **Account in the name of the NCB** sponsoring the CSM into TARGET2

  Alternatively, the PM account is in the name of the NCB rather than the CSM, where the NCB holds the money on behalf of the CSM thus protecting the funds from CSM insolvency.

There is another model which is the so called Liquidity Bridge model, where the PM account is owned by a commercial Payment Service Provider who is a Settlement bank in CSM2. Because the funds are held in a commercial bank, there is some risk in this model and hence it is not the preferred EACHA model. CSMs may use this model in circumstances where they find it difficult to arrange a Fiduciary Account and where their member banks accept the inherent risks involved.

Risk Management

To ensure that there are no extra risks both models have the following basic principles:

- The TARGET2 account of the other CSM is only credited;
- The TARGET2 account only contains funds intra-day;
- The TARGET2 account is only used for Settlement of Inter-CSM funds;

The Inter-CSM Settlement process includes the following features to minimise risk:

- **Settlement before output**; Messages are only forwarded to Receiving CSM when the applicable Settlement has been successfully completed by the Sending CSM.
- **Separation of debit process from credit process in inter CSM settlement:** The debit side and the credit side of inter bank settlement are separated i.e. the debit side must complete successfully in one CSM before the credit side can take place in the other CSM.
- **Separate settlement per scheme**; the Settlement of the different schemes (SCT, SDD) is done as much as possible via separate Settlements in TARGET2 to reduce unwinding in case of incidents in one of the Payment schemes.
- **Clear ownership of funds**; after Settlement in TARGET2 the Payments are Final due to the Settlement Finality of the TARGET2 system. The Receiving CSM (and its Participants) are therefore protected against possible insolvencies on the sending side and rightful claims afterwards. Protection against insolvencies and rightful claims on the receiving side will depend on the Settlement Finality rules of the Receiving CSM.

- **Protecting the funds held in CSM accounts;** one of the principles of inter CSM settlement is that funds are only held intra day. Nevertheless, CSMs should ensure that funds are protected against balances being drawn into the insolvency of the CSM so that proper and timely unwinding can take place to the owners of the balances. This will be achieved by ensuring that the legal construction of the account protects the balances from CSM insolvency.

3.7 Reconciliation

Although it is the responsibility of the Receiving CSM, it is advised that the Receiving CSM has a proper reconciliation process in place to check whether the funds received on its PM-Account are corresponding to the Payment files exchanged with the Sending CSM. The use of a unique reference, TARGET2 functionality and specific reports of the Sending CSM can be used for reconciliation purposes by the Receiving CSM. The EACHA Framework gives guidance on how the Receiving CSM can reconcile before crediting the funds to its Participants. More on reconciliation can be found in Annex V.

4 Version history

Date/Period	Milestone
August 2006	EACHA Technical Paper on Interoperability v0.93 published to EPC
March 2007	Interoperability Framework 2.0 published to stakeholders for consultation i.e. Central Banks and European banking industry
May 2007	Feedback from industry consultation
June 2007	Version 2.1 of the Framework issued including consultation feedback
August 2007	Version 3.0/3.02 including the results of work on outstanding issues
28 January 2008	Start of SEPA
September 2008	Version 4.0: SDD, Interoperability & SCT updates
March 2009	Version 4.1: various updates, SDD reach table provisions
March 2010	**Version 5.0: alignment Rulebook SCT & SDD Core 4.0 and SDD B2B 2.0), major update structure and text Framework**

5 Glossary

Term	Meaning
"Central Bank" or "NCB"	The Supervisory Authority in any country to which the services or the related activities of the CSM may be subject.
Community	Participants of a CSM.
CSM	Clearing and Settlement Mechanism as described in the PEACH/CSM Framework of the EPC.
EACHA	European Automated Clearing House Association.
EPC	European Payment Council.
EACHA Taskforce	Working group within EACHA responsible for generating the Technical Interoperability standards.
Fiduciary Account	A PM Account owned by a Central Bank.
Framework	Standards, procedures and rules according to which in the context of this document technical Interoperability between two parties can be established**.**
Inter-CSM	Bilateral between two CSMs.
Interoperability	Within the context of this document, the ability to be systematically and consistently accessible to other Payments Service Providers and CSMs.
ISO 20022 Unifi	International Organization for Standardization ISO 20022 Universal financial industry Message scheme.(www.iso20022.org)
Liquidity Bridge	PM Account owned by a Payment Service Provider used by the CSM to exchange funds according to the EACHA Framework.
Message	Structure to exchange Payment or Settlement Information.
Participant	Party that participates in a CSM.
Payment	SEPA Credit Transfer or SEPA Direct Debit as defined in the applicable Rulebook of the EPC.
Payment Processor	CSM

Term	Meaning
Payment Service Provider	Entity that provides Payment Services to other entities.
PEACH	Pan-European Automated Clearing House as defined by the PEACH/CSM Framework of the EPC.
PEACH/CSM Framework	This document is issued by the EPC and establishes the principles on which Clearing and Settlement Mechanisms (CSMs) will support the Schemes for SEPA Credit Transfer and SEPA Direct Debit on the basis of separation of Scheme from infrastructure.
PM-Account	An account managed by a Bank or entity for the benefit of a CSM in TARGET2.
PSD	Payment Service Directive.
Reachability Directory	Table presenting how Payment Service Providers can be reached.
Reach Table	Table presenting reachable entities and conditions for reachability. The reach Table specified by EACHA is in XML format and issued by the CSMs.
Receiving CSM	CSM whose PM account is credited with Payments addressed to its Participants.
Rulebook	A Rulebook describes a SEPA scheme. Rulebooks are issued by the EPC. A SEPA Scheme is a common set of rules, practices and standards for the provision and operation of a SEPA Payment instrument agreed at inter-bank level in a competitive environment.
SCT	SEPA Credit Transfer as defined in the Rulebooks.
SDD	SEPA Direct debit as defined in the Rulebooks.
Sending CSM	CSM that credits the other CSM's PM account with Payments addressed to Participants in the latter.
SEPA	Single Euro Payment Area.
Settlement	Transfer of funds resulting from Payment information.
STP	Straight-Through-Processing.
SWIFT	Society for Worldwide Interbank Financial Telecommunication.

Term	Meaning
TARGET2	Trans-European Automated Real-time Gross Settlement Express Transfer system. The Payment system of the Euro System used for interbank Settlement of domestic and international Payments in Euro. The Euro System comprises the European Central Bank and the national Central Banks of the countries that adopted the Euro.
XML	Extended mark-up Language